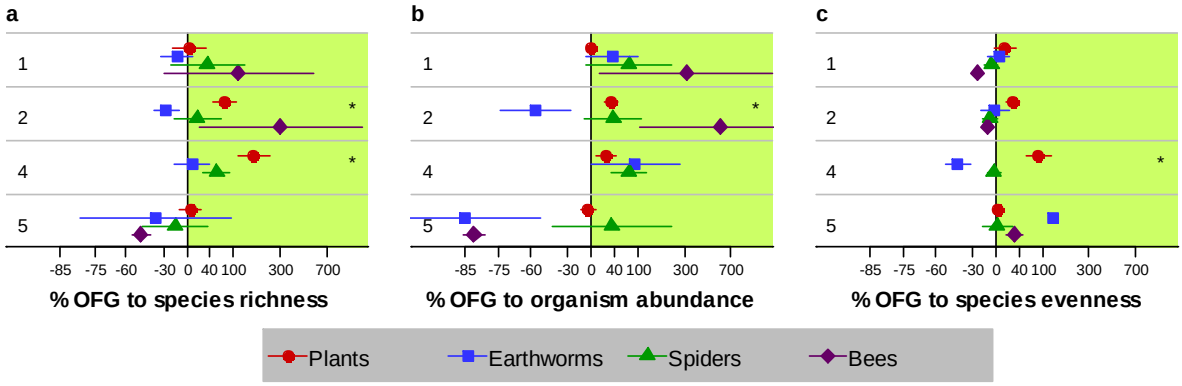
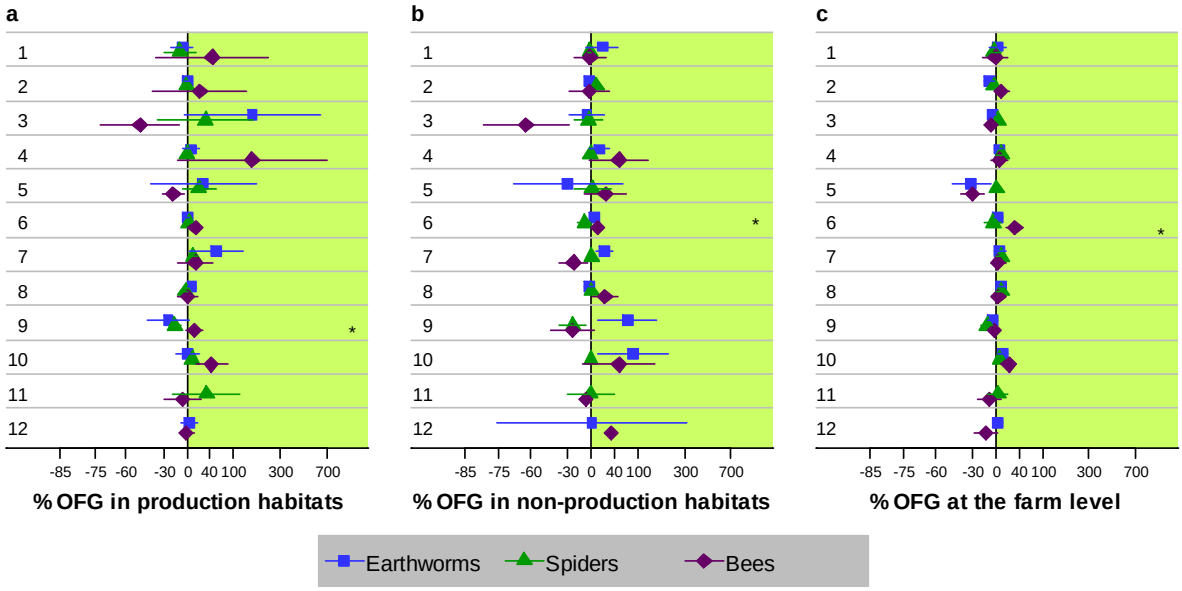
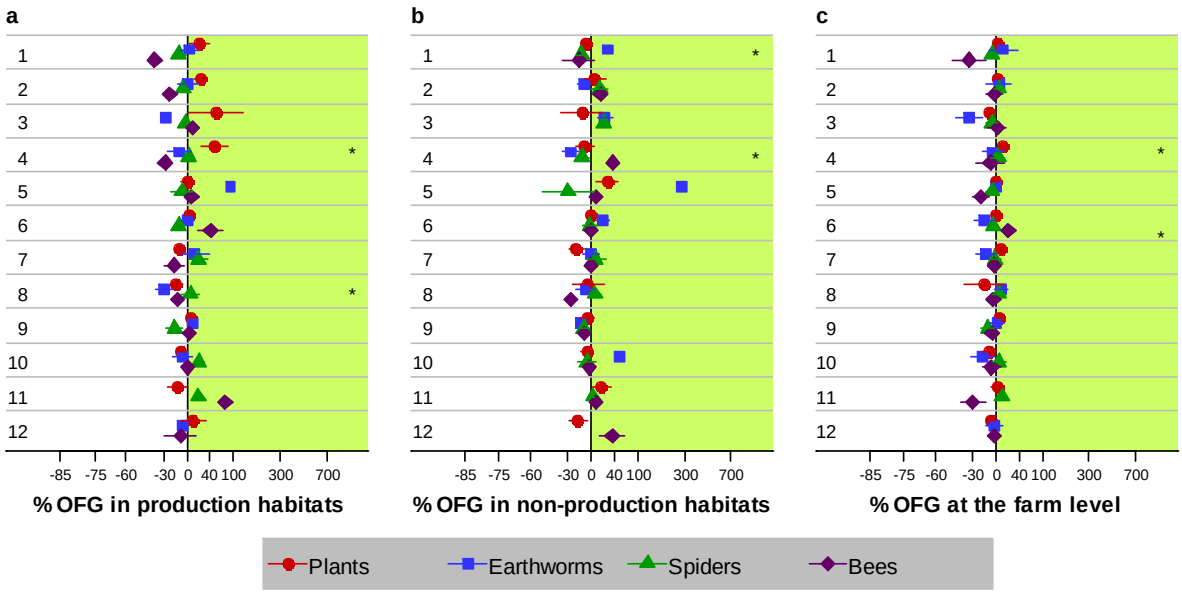
Supplementary Information



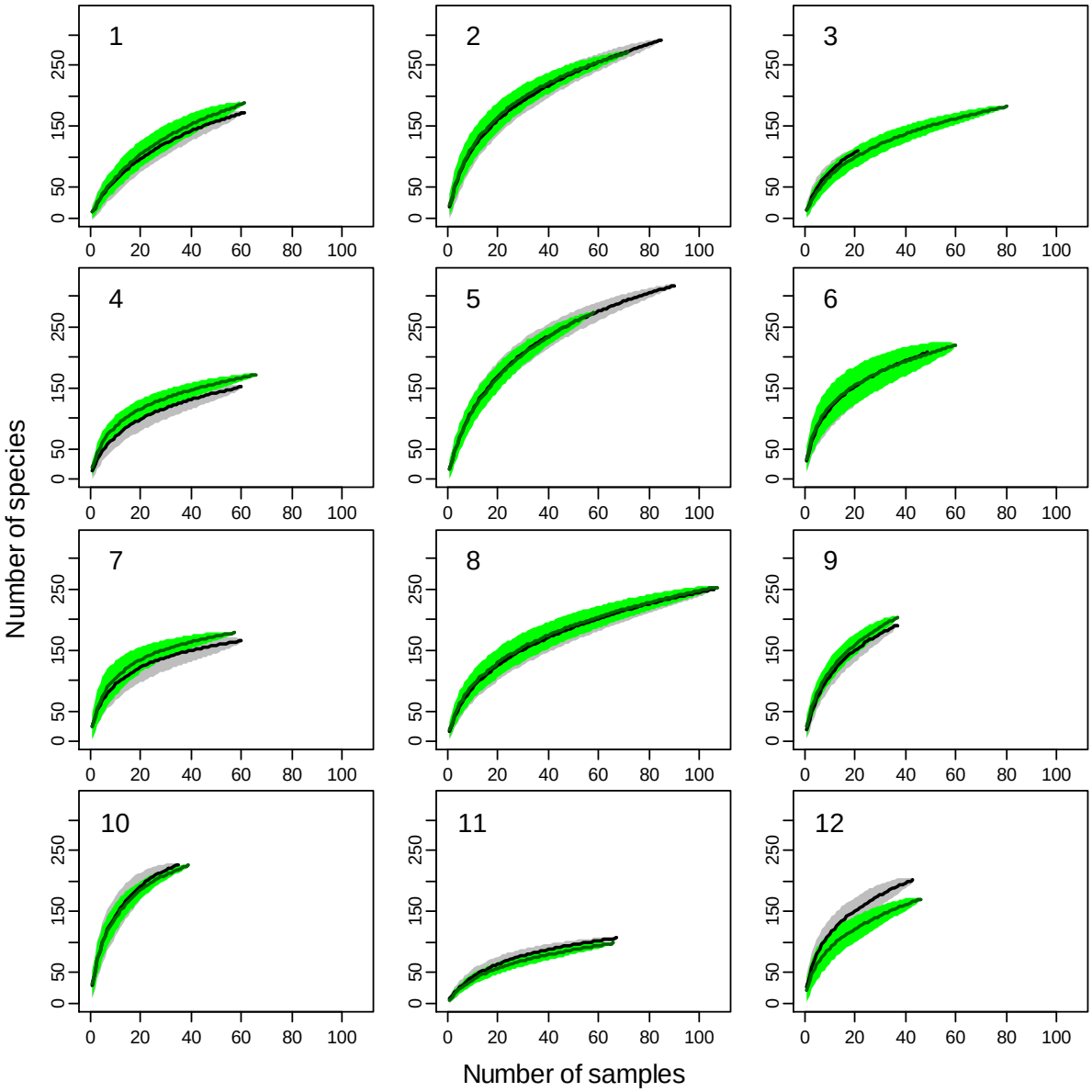
Supplementary Figure 1 | Organic farming gains and losses (OFG) in the regionally most frequent crops in arable and mixed regions. Organic farming gains/losses (± standard deviation) to species richness (a), organism abundance (b), and species evenness(c) of the four taxonomic groups in the regionally most frequent crop in regions with arable and mixed land use (winter wheat in 1 Marchfeld, 2 Gascony, 4 Southern Bavaria as well as alfalfa in 5 Homokhatsag). Effects on bees in Southern Bavaria could not be calculated because no bees were found in non-organic winter wheat fields. X-axis is log-scaled to equalize distances on both sides of parity. Significant differences within regions (U-Test) at 0.05, 0.01, and 0.001% are indicated by *, **, and ***, respectively.



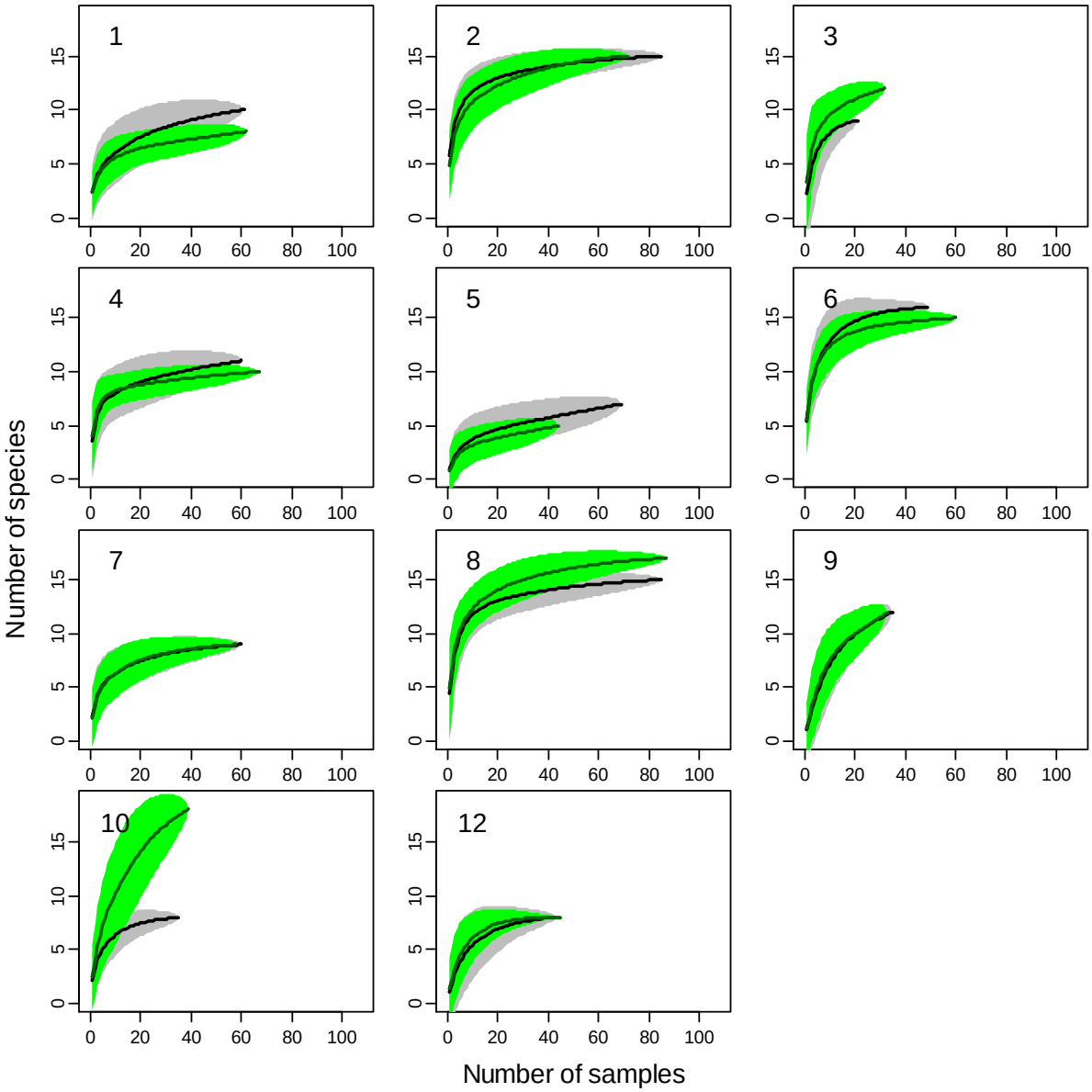
Supplementary Figure 2 | Organic farming gains and losses (OFG) to rarefied faunal species richness in twelve regions. Organic farming gains/losses (± standard deviation) to rarefied species richness of the three faunal groups in the regionally most frequent production habitats (a), and non-production habitats (b), and on total organism abundance per farm for the faunal groups (c). X-axis is log-scaled to equalize distances on both sides of parity. Significant differences within regions (U-Test) at 0.05, 0.01, and 0.001% are indicated by *, **, and ***, respectively. Numbers indicate the twelve regions as displayed in Fig. 1a.



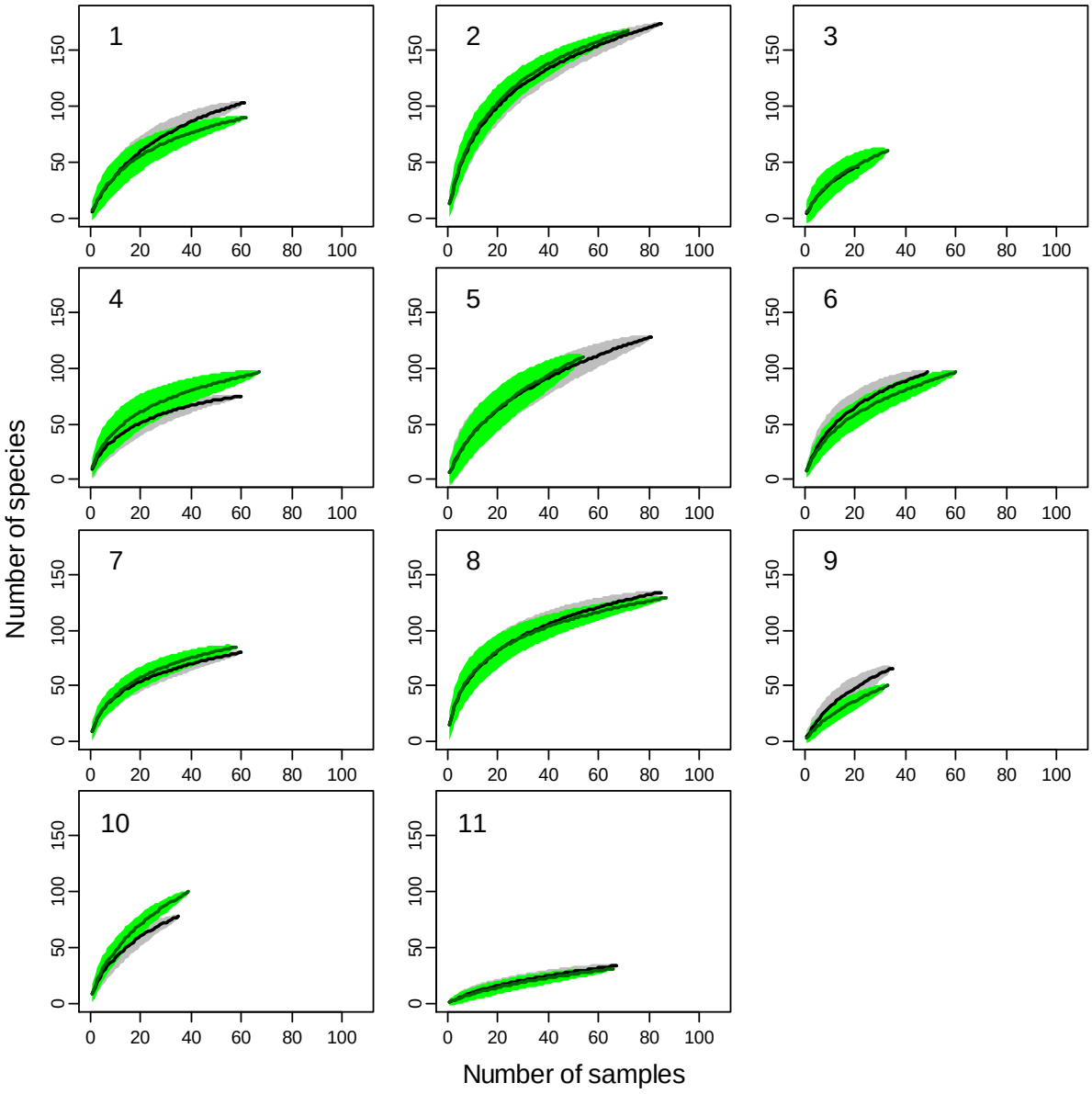
Supplementary Figure 3 | Organic farming gains and losses (OFG) to species evenness in twelve regions. Organic farming gains/losses (± standard deviation) to species evenness for the four taxonomic groups of plants, earthworms, spiders, and bees in the regionally most frequent production habitats (a), non-production habitats (b), and at farm level (c). X-axis is log-scaled to equalize distances on both sides of parity. Significant differences within regions (U-Test) at 0.05, 0.01, and 0.001% are indicated by *, **, and ***, respectively. Numbers indicate the twelve regions as displayed in Fig. 1a.



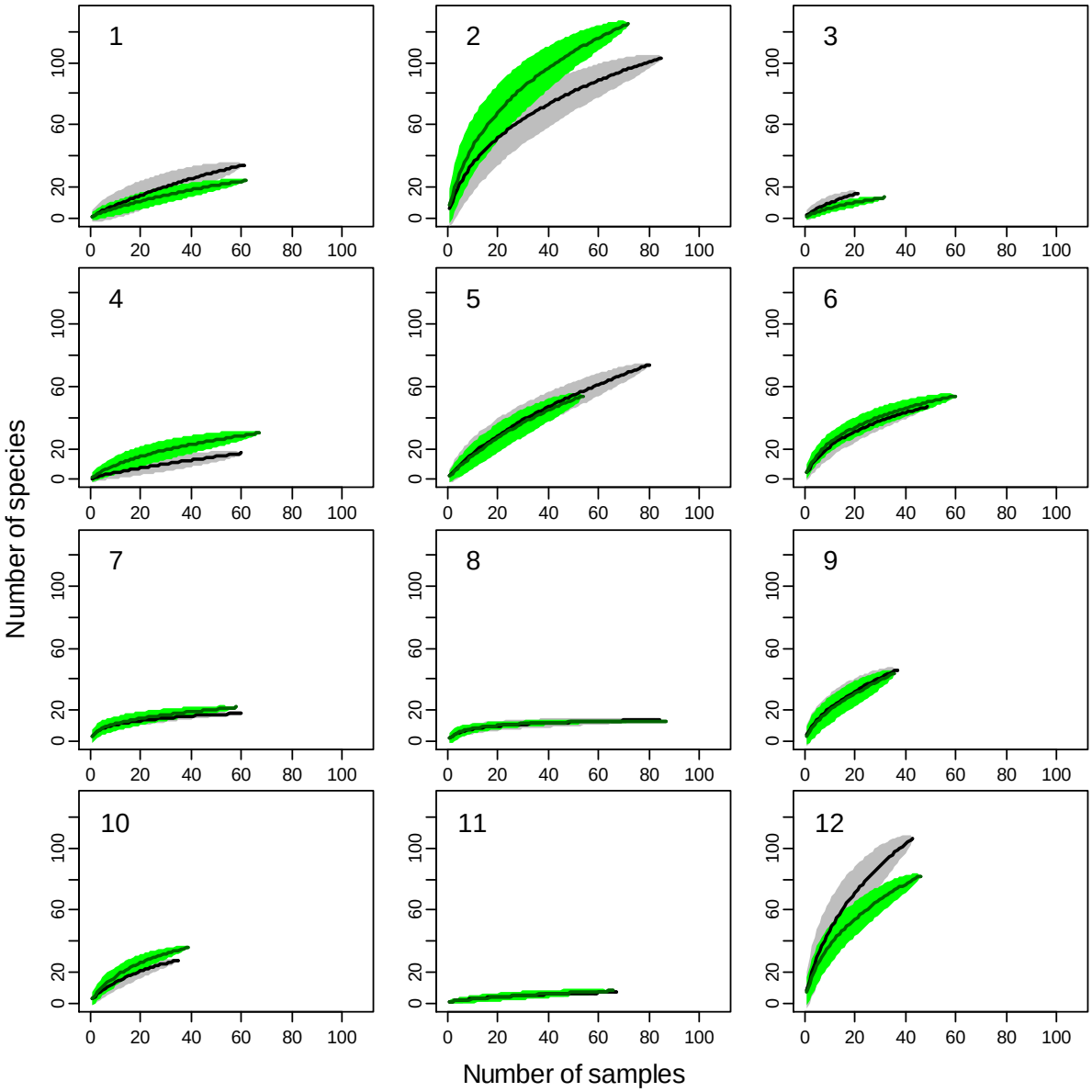
Supplementary Figure 4 | Plant species accumulation under organic and non-organic farming in twelve regions. Accumulation of the number of plant species with the number of samples in organic (green) and non-organic (grey) fields. Numbers indicate the twelve regions as displayed in Fig. 1a.



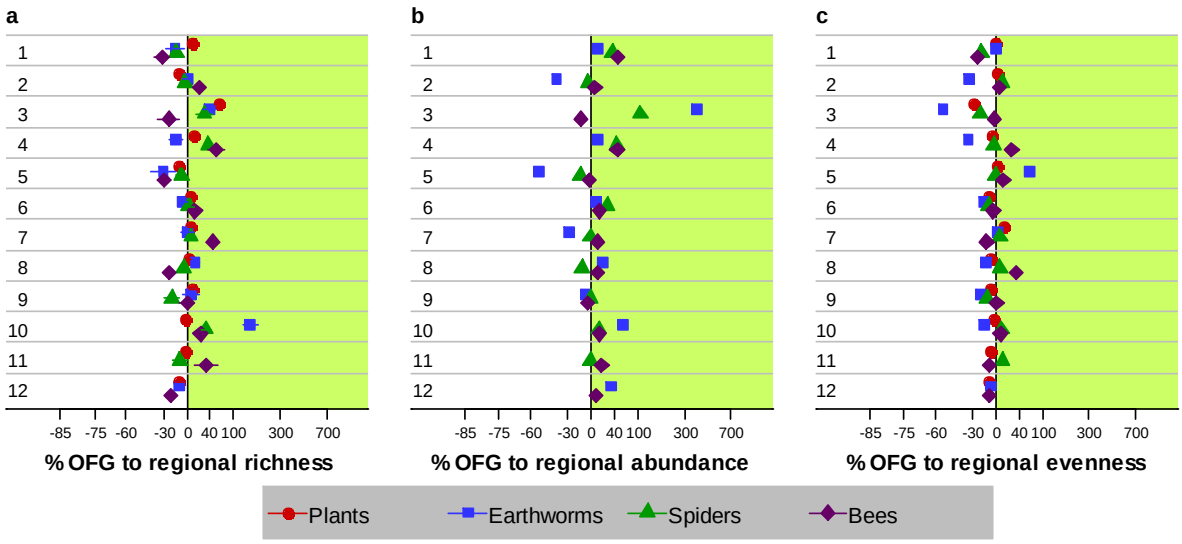
Supplementary Figure 5 | Earthworm species accumulation under organic and non-organic farming in eleven regions. Accumulation of the number of earthworm species with the number of samples in organic (green) and non-organic (grey) fields. Numbers indicate the regions as displayed in Fig. 1a. Earthworms were not sampled in region 11 (Monastir/Madhia).



Supplementary Figure 6 | Spider species accumulation under organic and non-organic farming in eleven regions. Accumulation of the number of spider species with the number of samples in organic (green) and non-organic (grey) fields. Numbers indicate the regions as displayed in Fig. 1a. Spiders were not sampled in region 12 (Kayunga).



Supplementary Figure 7 | Bee species accumulation under organic and non-organic farming in twelve regions. Accumulation of the number of bee species with the number of samples in organic (green) and non-organic (grey) fields. Numbers indicate the twelve regions as displayed in Fig. 1a.



Supplementary Figure 8 | Organic farming gains and losses to species diversity at regional level. Organic farming gains/losses (± standard deviation) to extrapolated regional species richness using first-order jackknife (a), regional abundance (b), and regional species evenness (c). Regional organism abundance was only calculated for faunal groups. Since only point estimates were available for organism abundance and species evenness, standard deviation could not be calculated. X-axis is log-scaled to equalize distances on both sides of parity. Numbers indicate the twelve regions as displayed in Fig. 1a.

Supplementary Table 1 | Number and size of sampled farms. Group means (standard deviation) for organic farms (OF) and non-organic farms (NOF) in the study regions as well as source of initial information used for random selection.

Nr	Region	# of farms		Farm area (ha)		Source of initial farm information
		NOF	OF	NOF	OF	
1	Marchfeld	8	8	64.1 (25)	72.7 (37)	Austrian Ministry of Agriculture (INVEKOS)
2	Gascony	8	8	101 (62)	38.7 (30)	Gers & Hte-Garonne Chambers of Agriculture and Dynafor farm database
3	Gelderland	3	11	10.8 (7)	22.1 (12)	Biologica and Ministry of Agriculture, Nature and Food Quality
4	S. Bavaria	8	8	65.2 (29)	54.9 (31)	Bavarian State Research Center for Agriculture
5	Homokhatsag	11	7	88.3 (50)	107 (44)	Kiskunság National Park Directorate, Bács-Kiskun County Agricultural Chamber, Biokontroll Hungária Nonprofit Ltd.
6	Obwalden	9	10	9.58 (5.1)	10.1 (3.5)	Office for Agriculture, Canton of Obwalden
7	Hedmark	6	6	13.8 (5.7)	17.5 (9)	Applications for Farm Subsidies database, Norwegian Agricultural Authority.
8	Wales	10	10	152 (112)	132 (83)	Organic Farming Wales database & Farm Business Survey
9	Veneto	9	9	28.8 (34)	18.1 (6.8)	Local producer associations
10	Extremadura	10	10	7.68 (11)	8.28 (5.7)	Organic Farming Committee of Extremadura and cooperative of olive producers of North Extremadura (ACENORCA)
11	Monastir/ Madhia	10	10	17 (18.6)	132 (268)	Ministry of Agriculture, regional department
12	Kayunga	8	8	3.5 (2.9)	2.4 (1.5)	Parish Unit Administrations of Nakseeta and Nsotoka

Supplementary Table 2 | Habitat characteristics per region. Values are means (and standard deviations) of sampled habitats in organic farms (OF) and non-organic farms (NOF) as well as most frequently observed production and non-production habitats per region.

Nr	Region	Mean # of sampled habitats		Most frequent habitats	
		NOF	OF	Production	Non-production
1	Marchfeld	7.6 (2.5)	7.8 (1.67)	Winter-sown crop	Herbaceous strip
2	Gascony	11 (2.88)	9 (3.07)	Winter-sown crop	Grass strip
3	Gelderland	7 (2)	7.5 (1.57)	Horticultural crop	Grass strip
4	S. Bavaria	7.5 (0.926)	8.4 (1.69)	Winter-sown crop	Grass strip
5	Homokhatsag	8.2 (2.75)	8.3 (2.63)	Summer-sown crop	Water edge
6	Obwalden	5.4 (2.07)	6 (2.16)	Fertile grassland	Herbaceous strip
7	Hedmark	10 (2.28)	9.7 (1.86)	Fertile grassland	Herbaceous strip
8	Wales	11 (1.51)	11 (2)	Fertile grassland	Water edge
9	Veneto	4.1 (0.782)	4.1 (1.05)	Vineyard	Grass strip
10	Extremadura	3.5 (3.17)	3.9 (1.73)	Olive grove	Line of shrub
11	Monastir/Madhia	6.7 (1.34)	6.6 (1.58)	Olive grove	Grass strip
12	Kayunga	5.6 (2.92)	5.8 (2.55)	Pineapple/Banana	Grass fallow

Supplementary Table 3 | Correlations between organic farming gains to species richness and organism abundance. Shown are Spearman's rank correlation coefficients together with significance levels (* 0.05%, ** 0.01%, and *** 0.001%, ns non-significant). Organism abundance was not quantified for plants at farm level.

Level	Plants	Earthworms	Spiders	Bees
Most-frequent production habitats	0.55^{ns}	0.73*	0.56^{ns}	0.90***
Most-frequent non-production habitats	0.66*	0.77**	0.75**	0.78**
Farm	-	0.71*	0.37^{ns}	0.19^{ns}